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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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CARELLA, BYRNE, BAIN, GILFILLAN, CECCHI,
STEWART & OLSTEIN
6 BECKER FARM ROAD
ROSELAND, NJ 07068

EXAMINER

MEDINA SANABRIA, MARIBEL

ART UNIT	PAPER NUMBER
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1754

DATE MAILED: 10/27/2003

9

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/070,711

Applicant(s)

SHAN ET AL.

Examiner

Maribel Medina

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 July 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☐ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 17 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:
 - a. In page 2 after "BRIEF DESCRIPTION OF THE DRAWINGS", "Fig. 1" should be changed to --Fig. 1A--.
 - b. In page 3, 3rd line "Fig. 2" should be changed to --Fig. 2A--.
 - c. In page 3, 8th line "Fig. 3" should be changed to --Fig. 32A--.
 - d. In page 3, 14th line "Fig. 5" should be changed to --Fig. 5A--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 7-12 and 16-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
 - a. Claim 7 recites the limitation "the glycol" in line 1. There is insufficient antecedent basis for this limitation in the claim. (Note that "glycol" is either from claim 2 or claim 6).
 - b. Claim 8 recites the limitation "the inorganic oxide precursor" in line 3. There is insufficient antecedent basis for this limitation in the claim.
 - c. Claim 9 recites the limitation "the inorganic material" in line 1. There is insufficient antecedent basis for this limitation in the claim.

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d. Claim 10 recites the limitation "the glycol" in line 1. There is insufficient antecedent basis for this limitation in the claim. (Note that "glycol" is either from claim 2 or claim 6).

e. Claim 11 is indefinite for use of improper Markush language. The phrase "*selected from the group of*" is confusing and renders the claim indefinite. The phrase should be changed to -- selected from the group consisting of--.

f. Claim 16 recites the limitation "the amorphous inorganic oxide" in line 1. There is insufficient antecedent basis for this limitation in the claim.

g. In claim 23, lines 6-7, the limitation that reads "said inorganic oxide" render the claim unclear, since is not clear if is referring to the inorganic oxide of the "mixture" or the one produced by "said heating".

Double Patenting

4. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

5. Claims 1-13, 23 and 24 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-13, 17 and 18 of prior U.S. Patent No. 6,358,486 B1. This is a double patenting rejection.

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Claim Rejections - 35 USC § 102

__The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

2. Claims 1, 3-5, 8-9, and 11-14 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 5,849,258 (Lujano et al) as evidenced by US 5,840,271 (Carrazza et al).

Lujano et al disclose applicants' claims as evidenced by Carrazza et al. Lujano et al disclose a process for producing a crystalline material (inorganic oxide) having micropores and mesopores. A material containing micropores selected from the group consisting of metalosilicate, zeolite, among others (See col. 4, lines 8-12) is reacted in an aqueous media with an organic compound having tensoactive properties selected to provide the mesopores in the material (See col. 4, lines 21-30). The product of the reaction is a crystalline inorganic oxide material containing micropores and mesopores. The crystalline inorganic oxide material containing micropores and mesopores obtained is further treated to extract the organic compound, by calcination (instant heating step) or solvent extraction. The organic compound is selected from cationic (e.g. quaternary ammonium salts), anionic and non-ionic (e.g. ethoxylated amines, amine oxides, derivatives of saccharides or polyalcohols) surfactants. During the nuclei aggregation of the material with the organic compound either or both electrostatic forces and van der Waal's forces provide the interaction between them (See col. 5, lines 1-20). The crystalline inorganic oxide material containing micropores and mesopores product may also contain

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materials such as *alumina*, *silica*, *silica-alumina*, etc. (See col. 6, lines 43-66). It is disclosed in col. 7, lines 1-11, that the starting material nuclei may be prepared by adding a template such as mono, di, tri and tetra-alkyl amines. It is also disclosed in col. 7, lines 54-65, that noble metals, Group VIII metals or Group VI may be added to the material to enhance the catalytic activity of the material.

No difference is seen between applicants' claims and the disclosure of Lujano et al. It is noted that Lujano et al is silent in regards to the interaction between the inorganic oxide and the compound as being a "hydrogen bonding" *per se*. However, Lujano disclose the interactions are not limited to the ones disclosed above (See col. 5, lines 10-20, specifically lines 17-20).

Carrazza et al is submitted as evidence to show that the interaction of non-ionic oxide (such as the one described in Lujano et al) interact with the inorganic oxides by hydrogen bonding (See Carrazza et al col. 3, line 65 to col. 4, line 24). Therefore the interaction by hydrogen bonding as instantly claimed is inherently provided by Lujano et al.

Note that the secondary reference (Carrazza et al) is only provided as evidence. "To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence. Such evidence must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill." (See *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268, 20 USPQ 2d 1746, 1749 (Fed. Cir. 1991).

No difference is seen between the instantly claimed invention and Lujano et al disclosure.

3. Claims 16-22 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 5,849,258 (Lujano et al).

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Lujano et al disclose applicants' product. Lujano et al disclose a crystalline material comprising micropores and mesopores. The micropores size ranges from 3 Å to about 15 Å, and have a pore volume of at least about 0.15 cc/g. The mesopores size ranges from about 20 Å to about 100 Å, and have a pore volume of at least about 0.1 cc/g (See col. 3, lines 50-60). It is disclosed in col. 3, lines 60-68 that the material is further characterized by an x-ray diffraction pattern which exhibits at least two lines at d-spacings of less than 15 Å, by the presence of an absorption band between 540 cm^{-1} and 750 cm^{-1} in an infrared spectrum and/or by ion-exchange capacity higher than 0.05 mili-equivalents per gram of material on a dry basis.

Lujano et al is silent in regards to the specific percentage of pore volume amount of micropores, based on micro- and mesopores. However, Lujano does disclose the minimum amount of pore volume of micropores (at least about 0.15 cc/g) and the minimum amount of pore volume of mesopores (at least about 0.1 cc/g) from this data, one of ordinary skill in the art can determine that the percentage of micropores falls in the range disclosed in applicants' claim 16.

Lujano et al is silent in regards to the BET surface area of the crystalline material, however it is inherent that the material would have a surface area that is in the range disclosed in applicants' claim 18 (BET Surface area from 50 to 1250 m^2/g) since the product disclosed in applicants' claims have the same properties of the one disclosed in Lujano et al. Also it is inherent that the pore size distribution as claimed in claim 19-20, would be the same as in Lujano et al.

4. Claims 16-22 are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 5,601,798 (Cooper et al).

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Cooper et al disclose an inorganic oxide including mesopores and micropores said micropores being present in percentages volumes falling in the instantly claimed range from 3% to 60 % by volume; having surface area falling within the instantly claimed range; and with combined mesopores and micropores volumes in the instantly claimed range. See the various Tables throughout the specification of Cooper et al and the Summary of various examples below.

Table	Example	Micropores volume (cc/g)	Macropore volume (cc/g)	Combined volume (cc/g)	Micropores %	Surface Area (m2/g)
3	3	0.227	0.202	0.429	53	729
3	4	0.189	0.263	0.452	42	685
3	5	0.15	0.344	0.494	30	552
3	6	0.103	0.443	0.546	19	370
4	7	0.202	0.087	0.289	70	675
6	13	0.209	0.198	0.407	51	653

In regards to the limitations of claims 19-20, these would be inherently provided by the products of Cooper et al, since the instantly claimed product have the same characteristic in regards to the content of mesopores and micropores; the same surface area; and the same combined pore volumes. Therefore difference is seen between the instantly claimed invention and Cooper et al disclosure

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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7. Claims 2, 6-7, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lujano et al as applied to claims 1, 3-5, 8-9, and 11-14 above, and further in view of US 3,959,174 (Winyall).


Lujano et al apply herein as above. Lujano et al does not disclose the use of glycol as the compound that binds to the inorganic oxide by hydrogen bonding. Winyall teaches a method for producing a high wide pore volume silica gel, wherein a silica gel is reacted with a desolubilizing agent in order to create larger pores (See col. 3, lines 14-18). Solubilizing agents disclosed by Winyall are propanol, ketones, ammonium sulfate, and glycol (See col. 3, lines 19-33). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have used a glycol in Lujano et al as disclosed by Winyall, since both are used for the same purpose of creating larger pores in inorganic oxides.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Maribel Medina whose telephone number is (703) 305-1928. The examiner can normally be reached on Monday through Friday from 7:30 AM to 4:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on (703) 308-3837. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.


Maribel Medina
Examiner
Art Unit 1754